

THE NESTING HABITS OF THE TWIG-DWELLING
BEE, *PROSOPIS MODESTUS* SAY¹BY PHIL RAU
Kirkwood, Mo.

The nests of this little bee were always found, in my experience, in the top hollows of sumac twigs. Only the upper part of the cavity was used—usually $2\frac{1}{2}$ or 3 inches, never more. Traces of mud partitions and various other relics in the lower, unused portion made it evident that the tunnels had been used before, but whether this bee always uses old borrowed burrows or whether she may sometimes do her own excavating I cannot say positively. The young of this species construct very thin and transparent, delicate cocoons which entirely cover the body. The cocoons are close together and between them are heavy dividing walls, but I have not yet been able to tell with certainty whether these disc-like walls are actually partitions of waxy substance built by the mother, or whether they are only the front wall or head-piece of each cocoon. These disc-like walls are semi-transparent in the center, and pale yellow, grading to a dark brown color and to greater thickness at the edges. The compact little cocoons, of brittle material which resembles the central portion of the hard disc, are packed in very close together, so close in fact that frequently two adhere to each other.

A good example of most of these characteristics was a little nest which was discovered in a twig in a park in

¹Regarding the identity of this species, I quote from a letter from Prof. T. D. A. Cockerell. The bee is "*Prosopis modestus* Say in the sense of Metz (1911). Your male seems to agree with *P. minyra* Lovell (*modestus* var. according to Metz). The female *minyra* has not been distinguished from that of *modestus*. It will be necessary to collect series of your insect to make sure what it should be called, but it is *modestus* in the broad sense."

February, 1920. It was brought home, and during the week of March 25 to 30, four adults of this species emerged. The hollow in the stem was three inches deep, and in this case I could see no evidence that this tunnel had been used previously. The cavity contained eleven cocoons, with no partitions between them excepting the heavy discs described above. The cocoons were crowded so close together that some of them adhered to each other as if built together.

The five lower cocoons contained dead larvæ. Of the six upper ones, four had, at the time of examination, already given forth their adults during the week preceding, and two contained fully developed insects, all black and ready to emerge. Those which had emerged, counting downward from the top, were Nos. 1, 2, 3, and 5, while 4 and 6 were about to come forth. This suggests that the usual order of emergence is from top to bottom of the twig, with occasional exceptions in the case of an individual here and there, due to weakness, sex or some handicap.

Another nest in a sumac twig was found to contain, on April 1, four bees of this species and one parasite. The two lower bees were in a far advanced pupal stage in their cells, while the two upper ones were already making their way out. Each insect had its hard disc above it; above the uppermost one of these was a vestibule of $\frac{1}{2}$ inch, and above this a loose filling, $\frac{3}{8}$ inch in depth, of finely broken pith. Here too, the youngest and uppermost was the first to emerge, making it easy for those that were to follow. Her method of emergence was most ingenious. She did not attempt to bite her way through the hard disc forming the partition; that material was too hard, and it was too difficult to get a jaw-hold on the concave surface. So she detoured and bit her way upward through the soft pith in the wall, making a new passage around the side of the obstruction. Don't condemn her for her laziness; respect her for her ingenuity.

The parasite was in the topmost cell. This adult was $\frac{1}{2}$ inch in length, much longer than the host and must have destroyed more than one young of the *P. modestus*.

Up to April 12, three bees had emerged, and the last cell still contained its bee, which was really the eldest of the

family (counting from date of oviposition) and was only now completely developed and ready to emerge, the last of the series. The hard disc forming the lid of each of the cells was in no case broken through, but all the insects had bitten out a new channel through the pith and around this lid and thus escaped upward into the gallery. The middle of April terminated the season of emergence of these bees in all the nests which came under my notice.

MUSCID LARVÆ TAKEN IN "SCIARA ARMY WORM"

In the spring of 1929 I observed a mass of fungus-gnat larvæ, usually referred to as a "Sciara army worm" moving across a lawn in Chambersburg, Penna.

With the *Sciara* larvæ and moving along with them were two Muscid larvæ. When not covered over in the moving mass their white bodies were quite conspicuous in contrast with the darker color of the *Sciara* larvæ.

I collected both specimens and the adults emerged on July 23rd. They proved to be *Muscina pascuorum* *Mei.* as determined by Mr. A. B. Champlain of the Penna. Dept. of Agriculture, Harrisburg, Pa. Apparently this species has not hitherto been reported from Pennsylvania, nor has the larva been observed before in America.

J. R. STEAR

Chambersberg Laboratory
Penna. Bureau of Plant Industry.